CONTENTS

PART 1 (FEBRUARY 1994)

Instructions to Authors PAGE

REVIEW

GRANT, S. A. AND MARRIOTT, C. A. Detailed studies of grazed swards – techniques and conclusions 1

CROPS AND SOILS

DONG SHUTING. Canopy apparent photosynthesis, respiration and yield in wheat 7

BENBI, D. K. Prediction of leaf area indices and yields of wheat 13

KIRBY, E. J. M., APPLEYARD, M. AND SIMPSON, N. A. Co-ordination of stem elongation and Zadoks growth stages with leaf emergence in wheat and barley 21

ADU-DAPAAH, H. K., COBBINA, J. AND ASARE, E. O. Effect of cocoa pod ash on the growth of maize 31

SHARMA, A. R. AND DE, R. N. Effect of foliage cutting on growth and yield of different rice cultivars under semi-deepwater conditions (0–80 cm) 35

GHOSH, B. C., GHOSH, R., MITTRA, B. N., MITRA, A. AND JANA, M. K. Influence of organic and inorganic fertilization on the growth and nutrition of rice and fish in a dual culture system 41

JACOBSEN, S.-E., JØRGENSEN, I. AND STØLEN, O. Cultivation of quinoa (*Chenopodium quinoa*) under temperate climatic conditions in Denmark 47

DE FIGUEIREDO, M. AND MARAIS, J. P. The effect of bacterial inoculants on kikuyu silage quality 53

OKEKE, J. E. Productivity and yield stability in cassava (*Manihot esculenta*) as affected by stake weight 61

XIA, M. Z. Effects of soil drought during the generative development phase of faba bean (*Vicia faba*) on photosynthetic characters and biomass production 67

JOHNSTON, A. E., MCEWEN, J., LANE, P. W., HEWITT, M. V., POULTON, P. R. AND YEOMAN, D. P. Effects of one to six year old ryegrass–clover leys on soil nitrogen and on the subsequent yields and fertilizer nitrogen requirements of the arable sequence winter wheat, potatoes, winter wheat, winter beans (*Vicia faba*) grown on a sandy loam soil 73

NGUYEN, M. L. AND GCH, K. M. Distribution, transformations and recovery of urinary sulphur and sources of plant-available soil sulphur in irrigated pasture soil–plant systems treated with ^{35}sulphur-labelled urine 91

JOSHI, R. C., HAOKIP, D. D. AND SINGH, K. N. Effect of green manuring on the physical properties of soil under a rice–wheat cropping system 107

ANIMALS

FREUDENBERGER, D. O., BURNS, C. J., TOYOKAWA, K. AND BARRY, T. N. Digestion and rumen metabolism of red clover and perennial ryegrass/white clover forages by red deer 115

BARLOW, R., HEARNSHAW, H., ARTHUR, P. F. AND DARNELL, R. E. Evaluation of Hereford and first-cross cows on three pasture systems. I. Calf growth and reproductive performance of young cows 121

HEARNSHAW, H., ARTHUR, P. F., KOHUN, P. J. AND BARLOW, R. Evaluation of Hereford and first-cross cows on three pasture systems. II. Growth of Hereford and Brahman sired calves out of mature cows 131

CAFE, L. M. AND POPPI, D. P. The fate and behaviour of imbibed water in the rumen of cattle 139

MARTIN, P. A., CHAMBERLAIN, D. G., ROBERTSON, S. AND HIRST, D. Rumen fermentation patterns in sheep receiving silages of different chemical composition supplemented with concentrates rich in starch or in digestible fibre 145

GOODCHILD, A. V. AND MCMENIMAN, N. P. Intake and digestibility of low quality roughages when supplemented with leguminous browse 151

ABSTRACTS

AFRC MODELLERS' GROUP. Proceedings of the Twenty-Fourth Meeting of the AFRC Modellers' Group 161

BOOK REVIEWS

PART 2 (APRIL 1994)

Instructions to Authors PAGE

REVIEW

WILSON, J. R. Cell wall characteristics in relation to forage digestion by ruminants 173

CROPS AND SOILS

FLAGELLA, Z., PASTORE, D., CAMPANILE, R. G. AND DI FONZO, N. Photochemical quenching of chlorophyll fluorescence and drought tolerance in different durum wheat (*Triticum durum*) cultivars 183

CHOWDHURY, M. K. AND ROSARIO, E. L. Comparison of nitrogen, phosphorus and potassium utilization efficiency in maize/mungbean intercropping 193

SHARMA, A. R. Effect of seed rate and row spacing on the performance of early and late maturing rice cultivars in mixed crop systems under intermediate deepwater conditions (15–50 cm) 201

VOLAIRE, F. Effects of summer drought and spring defoliation on carbohydrate reserves, persistence and recovery of two populations of cocksfoot (*Dactylis glomerata*) in a Mediterranean environment 207

WILMAN, D. AND DERRICK, R. W. Concentration and availability to sheep of N, P, K, Ca, Mg and Na in chickweed, dandelion, dock, ribwort and spurrey, compared with perennial ryegrass 217

WHITEHEAD, A. G. Effect of cultivar, carbofuran and row spacing on the incidence of stem and leaf nematodes (*Ditylenchus dipsaci* and *Aphelenchoides ritzema-bosi*) in lucerne (*Medicago sativa*) and on lucerne herbage yield 225

SOLOMON-BLACKBURN, R. M., MACKAY, G. R. AND BROWN, J. An evaluation of seedling progeny tests for resistance to potato leafroll virus in potato 231

PRABHJEET SINGH AND BHARGAVA, S. C. Changes in growth and yield components of *Brassica napus* in response to *Azotobacter* inoculation at different rates of nitrogen application 241

METZ, P. L. J., BUIEL, A. A. M., VAN NOREL, A. AND HELSPER, J. P. F. G. Genetic factors controlling outcrossing in faba bean (*Vicia faba*): effects of pollen donor and receptor genotypes and estimates of inter-receptor cross-fertilization 249

STÜTZEL, H., AUFHAMMER, W. AND LÖBER, A. Effects of sowing technique on yield formation of *Vicia faba* as affected by population density, sowing date and plant type 255

WHITE, J. W., OCHOA M., R., IBARRA P., F. AND SINGH, S. P. Inheritance of seed yield, maturity and seed weight of common bean (*Phaseolus vulgaris*) under semi-arid rainfed conditions 265

WHITE, J. W., CASTILLO, J. A., EHLERINGER, J. R., GARCIA-C., J. A. AND SINGH, S. P. Relations of carbon isotope discrimination and other physiological traits to yield in common bean (*Phaseolus vulgaris*) under rainfed conditions 275

ANIMALS

HAUSTEIN, A. T., GILMAN, R. H., SKILLICORN, P. W., HANNAN, H., DÍAZ, F., GUEVARA, V., VERGARA, V., GASTAÑADUY, A. AND GILMAN, J. B. Performance of broiler chickens fed diets containing duckweed (*Lemna gibba*) 285

COBON, D. H. AND CARTER, J. O. Effect of herbage in *Astrebla* spp. pastures in north-west Queensland on lamb survival 291

ORTIGUES, I., DURAND, D. AND LEFAIVRE, J. Use of para-amino hippuric acid to measure blood flows through portal-drained-viscera, liver and hindquarters in sheep 299

NEUTZE, S. A., ODDY, V. H. AND GOODEN, J. M. A cranial mesenteric vein preparation for measurement of amino acid uptake by lambs 309

EL-BELELY, M. S. Endocrine changes, with emphasis on 13,14-dihydro-15-keto-prostaglandin $F_{2\alpha}$ and corticosteroids, before and during parturition in dromedary camels (*Camelus dromedarius*) 315

BOOK REVIEWS 325

PART 3 (JUNE 1994)

Instructions to Authors PAGE

REVIEW

LEMON, R. W. Insecticide resistance 329

CROPS AND SOILS

KEMPTON, R. A., SERAPHIN, J. C. AND SWORD, A. M. Statistical analysis of two-dimensional variation in variety yield trials 335

CONRY, M. J. Comparative effect of six cultivars at four rates of nitrogen on the grain yield and grain quality of spring-sown malting barley in Ireland 343

DUBEY, S. K. AND MONDAL, R. C. Effect of amendments and saline irrigation water on soil properties and yields of rice and wheat in a highly sodic soil 351

SHARMA, A. R. AND DAS, K. C. Effect of green manuring with dhaincha (*Sesbania aculeata*) on growth and yield of direct-sown and transplanted rice under intermediate deepwater conditions (0–50 cm) 359

JENKINSON, D. S., POTTS, J. M., PERRY, J. N., BARNETT, V., COLEMAN, K. AND JOHNSTON, A. E. Trends in herbage yields over the last century on the Rothamsted Long-term Continuous Hay Experiment 365

WILMAN, D., GAO, Y. AND MICHAUD, P. J. Morphology and position of the shoot apex in some temperate grasses 375

NG KEE KWONG, K. F. AND DEVILLE, J. The course of fertilizer nitrogen uptake by rainfed sugarcane in Mauritius 385

DARBY, R. J. AND YEOMAN, D. P. Effects of methods of cereal straw disposal, seedbed preparation and sowing method on the establishment, yield and oil content of winter oilseed rape (*Brassica napus*) 393

LEACH, J. E., DARBY, R. J., WILLIAMS, I. H., FITT, B. D. L. AND RAWLINSON, C. J. Factors affecting growth and yield of winter oilseed rape (*Brassica napus*), 1985–89 405

RAO, L. J. AND MITTRA, B. N. Planting pattern of two pigeonpea (*Cajanus cajan*) cultivars when intercropped with groundnut (*Arachis hypogaea*) 415

HINDS, M. J. AND SINGH, B. Evaluation of fatty acids in oil as reaping indices for Caribbean-grown groundnut (*Arachis hypogaea*) 423

HEBBAR, K. B., SASHIDHAR, V. R., UDAYAKUMAR, M., DEVENDRA, R. AND NAGESWARA RAO, R. C. A comparative assessment of water use efficiency in groundnut (*Arachis hypogaea*) grown in containers and in the field under water-limited conditions 429

HULUGALLE, N. R. AND NDI, J. N. Changes in soil properties of a newly-cleared Ultisol due to establishment of hedgerow species in alley cropping systems 435

WEBB, J. AND SYLVESTER-BRADLEY, R. Effects of fertilizer nitrogen on soil nitrogen availability after a grazed grass ley and on the response of the following cereal crops to fertilizer nitrogen 445

ANIMALS

KHOMBE, C. T., HAYES, J. F., TAWONEZVI, H. P. R. AND KHOMBE, M. Estimation of genetic differences between Mashona bulls from different production systems using an animal model 459

MORROW, A. T. S. AND WALKER, N. Effects of number and siting of single-space feeders on performance and feeding behaviour of growing pigs 465

MORRIS, S. T., MCCUTCHEON, S. N., PARKER, W. J. AND BLAIR, H. T. Effect of sward surface height on herbage intake and performance of lactating ewes lambed in winter and continuously stocked on pasture 471

BOOK REVIEWS 483

INDEX 487